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The effect of social support on the blood pressure of mild and moderate hypertensives

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THE EFFECT OF SOCIAL SUPPORT ON THE BLOOD PRESSURE OF MILD AND MODERATE HYPERTENSIVES

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

by

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Dedication

This thesis is dedicated to my husband, Herbert Vaughan, and my two daughters, Debbie and Diana Vaughan, for their love, inspiration, and unselfish assistance in accomplishing a long awaited goal.

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THE EFFECT OF SOCIAL SUPPORT ON THE BLOOD PRESSURE OF MILD AND MODERATE HYPERTENSIVES

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The study was conducted to determine the relationship between social support and the blood pressure of mild and moderate hypertensives. Motivation for the study was derived from the growing realization that the social support of an individual has a far-reaching effect on illness and health and that little research has been done concerning the specific effect that social support has on blood pressure.

The Norbeck Social Support Questionnaire (NSSQ) was administered to a convenience sample of 30 subjects selected from among the hypertensive clients of the Family Practice Clinic and General Medical Clinic located in the Peninsula Health Center. The NSSQ gathered information about the subjects' social networks and allowed the researcher to examine the function of the social network by examining the components of the Net Social Network score. The Net Social Network score is composed of the Number in the Network, Total Function, Frequency, Duration, and Total Loss. The component scores were correlated with the observed systolic and diastolic blood pressures by using Pearson's Product Moment Correlation Coefficient as a measurement of the relationship between social support and the blood pressures of mild and moderate hypertensives.

A significant correlation was found between the observed systolic blood pressure, observed diastolic blood pressure, and the variables contributing to the Net Social Support score. The hypothesis that social support affects the blood pressures of mild and moderate hypertensives was supported by the data from the sample of 30 mild and moderate hypertensives used in the study.

Chapter 1

THE PROBLEM

Introduction

Hypertension is a serious problem in the United States. Since 1977 an increased effort has been made through the National Committee on Detection, Evaluation, and Treatment of High Blood Pressure to identify and treat all hypertensives. Despite recent advances in the understanding and treatment of the disease, many people with high blood pressure remain needlessly uncontrolled (Report of Joint Committee on Detection, Evaluation, and Treatment of High Blood Pressure, 1980). About 43 million adult Americans have some form of cardiovascular disease, and of this number 37 million of them have hypertension. Those people with hypertension are at a much higher risk for myocardial infarction, renal failure, and cerebrovascular accidents than normotensives. Hypertension is a significant factor in the 170,400 deaths due to strokes and the 566,900 deaths due to myocardial infarction each year (American Heart Association, 1983).

There are two types of hypertension. Primary or essential hypertension, which includes the large majority of hypertensives, has no known specific cause, while secondary hypertension has a recognizable specific cause. Even though a single causative factor for hypertension is unknown, a number of factors have been identified as being involved in the etiology. Some of these factors are age, gender, race, ethnic group, weight, occupation, diet, sodium intake, and stress.

There is increasing interest in stress as a factor related to hypertension. Kasl and Cobb (1970) recognized that blue collar workers who were laid off, or were threatened with being laid off, had increased blood pressures. Some workers' blood pressures were affected more than others under the same conditions. Gore (1978) used the data of Kasl and Cobb and showed that social support may play an important role in moderating the effect of stress on blood pressure; thus, blood pressure can be an indicator of mental health status as well as physical health. Blood pressure and mental health are adversely affected by stressful situations, but cohesion and social support have been identified as possible buffering variables (Cobb, 1976; Antonovsky, 1979). Caplan, Cobb, Harrison, French, and Penneau (1975) studied social support as a mediator and found that those men who received high-level support showed lower levels of physiological strain than those with low-level support. Cassel, in his analysis of the relationship between psychosocial factors and stress, suggested that social support serves as a protective buffering system from the consequences of stressors (Cassel, 1974; 1976). According to Cassel, there is an interactive relationship between social stressors, social support, and psychological distress.

The hypothesis that social support mediates or serves as a buffer between life events and psychosocial distress was tested by Wilcox (1981). The results provide clear support for the hypothesis that social support reduces the relationship between stress and psychosocial distress. Kasl and Cobb (1970) presented evidence in their study that social support is protective of health. Those blue collar workers in the study who had family and other support people in their lives were less affected by their job loss and/or threat of job loss than those workers with little support.

Their stress indicators also remained lower than those of workers reporting little support.

The mounting evidence that social support is a buffer for stress, and other health related problems, demands specific investigation of the specific relationship between social support and blood pressure. Since stress has been identified as a factor in blood pressure elevation, the study of social support, which is a buffer in stressful situations, should also show a relationship to blood pressure.

Need for the Study

In addition to the need to reduce the morbidity and mortality of hypertension, there is a need to understand the beneficial and detrimental factors which affect the blood pressure in individuals. There is a need to understand what can be done to reduce the effect that detrimental factors have on health and what can be done to increase the positive effect of beneficial factors.

If the detrimental effect is not reduced, hypertension itself becomes an important factor in the development of cardiovascular disease and increases the risk of mortality for those who have strokes and myocardial infarctions. Factors which influence hypertension but do not necessarily have adverse effects are age, gender, heredity, and social support.

According to studies by Cassel (1974), Kasl and Cobb (1970), Pilisuk and Froland (1978), Cobb (1976), Kaplan, Cassel and Gore (1977), Mitchell and Trickett (1980), Tolsdorf (1976), Norbeck (1981), Dean and Lin (1977), and Heller (1979), social support has a far-reaching relationship to life events and psychological well-being, but little has been

done to relate support to specific physical illnesses. The studies of social support have been hampered by a less than adequate tool for measuring support and are limited in their usefulness because of the lack of consistency in the definition of social support.

The bulk of social support research has explored the relationship between social support and health or illness. The relationship implies that interventions may reduce the negative outcomes for those with inadequate social support, but there are gaps in existing knowledge. Further study may well provide the scientific basis for intervention.

Norbeck (1981) has provided a model of the elements which she feels must be studied to provide the scientific basis for incorporating social support into nursing practice. The model includes the four elements which are included in many existing nursing practice theories: person, environment, health-illness, and nursing action. Norbeck's model also included the elements of nursing process, which are assessment, planning, implementation, and evaluation.

Norbeck begins with the concepts that certain personal characteristics and situation characteristics jointly determine the need for social support and the availability of that social support. She indicates that such variables as age, gender, marital status, religion, culture, and individual differences influence the need for social support, while situational variables influence the amount of social support needed. The model provides for assessment of the personal and situational characteristics for determination of social support adequacy, thus providing a basis for planning and intervention. The intervention can take two forms. The first form is that of influence for changing the structure, function, or use of the person's social support; and the second form of intervention

is that of providing direct social support or other help during crisis. The actual outcome is determined by evaluation. Other possible unknown influences are also included in the outcome evaluation. Norbeck indicated that knowledge gained from studies done on the elements of the model will aid in the determination of social network types most useful to specific people in particular situations.

The near absence of studies related to social support in nursing practice strongly suggested the current need for studying the area of social support in nursing practice. Since nursing is so often involved in the social network and in the primary care of hypertensives, the impact and influence of social support relative to blood pressure needs to be better understood by all nurses if they are to intervene advantageously.

Purpose

This study was designed to determine what, if any, effect social support has on the blood pressure of mild and moderate hypertensives.

Hypothesis

There is an inverse relationship between the blood pressure of mild and moderate hypertensives and their social support.

Definition of Terms

Social Support.

> The interpersonal transactions of an individual include one or more of the following: the expression of positive affect of one person toward another; the affirmation or endorsement of another person's behaviors, perceptions, or expressed views; the giving of symbolic or material aid to another (Kahn, 1979:85).

Blood pressure. The pressure of blood exerted against the vessel walls is the blood pressure. The amplitude of the pressure exerted on the walls is dependent on the functional state of the left ventricle of the heart, the physical characteristics of the blood and arterial walls, and the peripheral resistance to blood flow. The systolic pressure is the maximum pressure that the blood exerts against the arterial walls when the heart contracts, normally 100 to 140 mm. Hg; diastolic pressure is the pressure the blood exerts against the walls when the heart is relaxed, normally 60 to 90 mm. Hg (Hurst, 1983).

Hypertension. An individual blood pressure which has a sustained diastolic reading greater than 90 mm. Hg and/or a sustained systolic reading of 140 mm. Hg or above. Hypertension is further classified as mild, moderate, and severe (Hurst, 1983).

The Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure (1980) classified hypertension along a continuum with risk at all levels. The following stratification by diastolic pressure level has become commonly accepted as the classification for hypertension:

Class	Diastolic Pressure
Stratum I (mild)	90-104
Stratum II (moderate)	105-114
Stratum III (severe)	$\geq$ 115

Essential Hypertension. A term which refers to hypertension without pathogenesis. Hypertension and essential hypertension were made synonymous by the World Health Organization's adoption of the following definition of essential hypertension proposed by Goldring and Chasis in 1963:

> The term hypertensive disease is synonymous with essential hypertension and should properly be restricted to designate the as yet unidentified physiological disturbance (or disturbances) characteristic of this disease and which lead ultimately to elevation of diastolic and systolic blood pressures, anatomical changes in the vascular tree, and functional impairment of the involved tissue.... Hypertensive disease is considered to be a clinical entity in which an unknown pressor mechanism initiates arteriolar vasoconstriction, elevated blood pressure and vascular sequelae. Hypertension, as such, like arteriolar changes is conceived to be a sequela appearing during the progressive development of the disease (Kaplan, 1979:44).

Limitations

1. The sample is a convenience sample which does not allow for generalization of the findings to other populations.

2. Only one blood pressure for each subject was taken.

3. Numerous factors can affect blood pressure, and they were not all controlled; therefore, variables other than the ones studied may have produced the effect reported in the study.

Theoretical Rationale

The support systems model developed by Gerald Caplan (1974) and the theory developed by Robert Kahn (1979) comprise the theoretical framework for this study. Caplan's model focused on the "health-promoting and ego-fortifying effects" of what is called "support systems." He defined these systems as:

> ...continuing social aggregates (namely, continuing interactions with another individual, a network, a group, or an organization) that provide individuals with opportunities for feedback about themselves and for validation of their expectations about others, which may offset deficiencies in the communications within the larger community context (Caplan, 1974:4).

Caplan also postulated that the social aggregates seen in relationships act as a buffer against disease because in the interpersonal relationships

the person is dealt with as an unique individual. This relationship offers personalized interest and guidance as well as positive feedback. This aggregate relationship rewards success and punishes, supports, and/or comforts failure.

When looking at support systems from a buffering point of view, the support systems may be observed functioning in one of two ways. They may collect and store information about cues from the outside world or may offer assistance and direction in finding a safe path through the maze of feedback. The supports may also act as a refuge where one can return for rest and recuperation before the next venture into the stressful environment. When one is fortunate enough to have support strategically situated in the community, at home, at work, and in other places, it is possible to move through the day with buffers against the stress of the environment.

The support systems were viewed by Caplan as being:

> of a continuing nature or intermittent and short-term and may be utilized from time to time by the individual in the event of an acute need or crises. Both enduring and short-term supports are likely to consist of three elements: (a) the significant others help the individual mobilize his psychological resources and meter his emotional burdens; (b) they share his tasks; and (c) they provide him with extra supplies of money, material, tools, skills, and cognitive guidance to improve his handling of his situation (Caplan, 1974:6).

The best known support systems in all societies are the nuclear and extended families, but in the urban society the collapse of the nuclear family and kinship obligations necessitates help from community agencies and skilled professionals for individuals with health, social, and emotional needs. In socially and/or economically deprived groups, family ties are usually very strong since professionals are less accessible. When there is no family for support, single people living together often form

pseudo-family groups with kin-like obligations which fill the role of the family to some extent (Caplan, 1974).

Kin and kith are two words often used to refer to support relationships. Kith refers to friends, acquaintances, and neighbors whereas kin refers to those bound by birth or marriage. Kin and kith provide continuing guidance as well as self-validation, while professionals and/or special services may give assistance in out-of-the-ordinary situations.

Caplan's model and approach have been used by others to formulate specific and expanded definitions of social systems. Based on information from studies by Caplan, Cobb, French, and Penneau, Kahn developed his definition of social support. which Norbeck used in the development of her nursing model and the Norbeck Social Support Questionnaire. Kahn was interested in new studies which would make social support the center of interpersonal relationships and would examine its effects beyond the work role. He was also interested in social support as a possible explanation for certain aging or life-course changes.

Kahn (1979) defined social support as having three key elements, i.e., affect, affirmation, and aid. Affective support is an expression of liking, admiration, respect, or love. Affirmation is an expression of agreement or acknowledgement of the appropriateness, or rightness, of some act or statement. The third element is direct aid or assistance and may include the giving of material things, information, time, and so forth but does not include bureaucratic awards of funds. Kahn also discussed social support in terms of a convoy. He explains convoy as being those significant people who move through life with the individual and relate to him by either giving or receiving social support throughout his life. The convoy loses and gains members as new situations and crises are met

just as a freight train gains and loses cars as it travels its route. Kahn related his concept of convoy and social support to role theory and network analysis. He thinks that it is similar to role set in that it consists of an individual and a set of other people who are defined in terms of their relationship to that individual. Convoy differs from role set in that it is defined as the giving and receiving of social support rather than as a position in an organizational or social structure. These transactions of giving and receiving are not restricted to the boundaries of positions and roles seen in organizational and social structure.

Kahn attached properties to his concept of convoy. They are similar to those seen in network analysis (size, internal connectedness, external connectedness, homogenity, stability, and symmetry). He also identified properties such as frequency, magnitude, initiative, range, type, symmetry, duration, and capacity within the convoy.

Kahn's conceptual approach can be summarized in terms of his specific hypotheses, which are that the adequacy of social support is a determinant of well-being, the properties of a person's convoy determine the adequacy of social support, and demographic and situational variables determine the properties of the convoy. The hypotheses are open ended and allow for further refinement and specification by the addition of knowledge through investigation and research.

Significance of the Problem to Nursing

From the evidence found in the literature, social support has a far-reaching effect on the well-being of the total person. Kaplan, Cassel, and Gore (1976) as well as Dean and Lin (1977) suggested that two types of social processes were important to disease etiology. Stress factors

constitute a social process which can be detrimental to health by increasing susceptibility to disease. Support, on the other hand, is a social process which is protective and acts as a buffer. The strength and availability of social support provided by the primary group can be most important to the individual.

Unmet social needs ultimately result in psychiatric and physical disability (Murawski, Penman, Schmitt, 1978). When significant support is lacking, health professionals have the opportunity and responsibility to be more active in providing needed support. Health care professionals can have a positive effect on individuals with regard to adherence to regimens and social needs (Caplan, 1976; Flowers, 1979). With that fact in mind, nurses and other health care professionals should face the challenge of providing social support when it is deficient for the individual. The support role may need to take numerous forms, from teacher or advocate to confidant. The exact role that nursing should play is not evident, but the fact that nursing does have a role has been examined by Norbeck and others. The important challenge at this point is a definition of the nursing role in the establishment of adequate social support of individuals with certain life stresses or illnesses.

With changes in family structure from that of the nuclear family to a more diverse structure, and with the increased mobility of individuals, sustained family support may not be available; therefore, health care professionals now have a greater need for better working knowledge of social support and its effect on the individual's health. This study was designed to contribute information needed for better nursing intervention as a health care provider and as a part of the social support network. The study identified the influence of social support on blood

pressure and should lead to a better understanding of the effect of social network on the well-being of individuals. In an effort to relate the social support, blood pressure, and the ultimate well-being of the individual, the study explored the number of people in the network, and the frequency and duration of contact which were believed to affect the adequacy of social support.

Chapter 2

REVIEW OF THE LITERATURE

Introduction

The review of the literature focused on hypertension, social support, and social network as three concepts which relate to health and illness. The concept of hypertension including the definition, the cost, the risk factors, and the results of long-term uncontrolled hypertensive disease was explored as well as many facets of social support. Since social support is included in the positive aspects of social network, a discussion of social network was deemed necessary with major emphasis placed on the relationship of social support to health, both physical and psychological.

Hypertension

Kaplan (1979) indicates that hypertension is not a specific abnormality with arbitrary dividing lines but that it represents a qualitative and not a quantitative deviation from the norm. The most widely accepted value for defining hypertension is a systolic pressure greater than 140 mm. Hg and diastolic pressure greater than or equal to ($\geq$) 90 mm. Hg (American Heart Association, 1983; National Committee on Detection, Evaluation, and Treatment of High Blood Pressure, 1980). The data used in establishing this cut-off point between normotensive and hypertensive were from observation and research. The Framingham Study, which collected data about hypertensives in a defined population, made a great contribution

to the understanding of the natural history and characteristics of the disease. (This study is discussed in more detail under risk factors.) Terms such as benign hypertension, permanent hypertension, and malignant hypertension have added to the confusion of further classification of hypertension. The public has often been confused by the terms being used in different ways.

Permanent hypertension refers to both systolic and diastolic arterial pressures that are consistently above normal values. Labile hypertension, which is frequently associated with psychic tension or physical effort, refers to the occasional elevation of systolic or diastolic arterial pressure, or both. Benign hypertension usually has a slow onset and is often without symptoms. Sometimes essential hypertension is referred to as being benign hypertension. Malignant hypertension is a severe form of hypertension in which occlusion occurs in the peripheral vessels.

The terms secondary and essential hypertension refer to the pathogenesis of hypertension. Secondary hypertension means the hypertension is secondary to a precise cause, such as a disorder to the kidney or adrenal gland. Essential or primary hypertension refers to hypertension without a known pathogenesis. About 90 percent of the known hypertensives fall in this group (Meyer, 1980).

Realizing that the specific cause of essential hypertension is unknown, certain specific disease pathophysiology should be considered. The level of the blood pressure is determined by the force of the blood against the arterial walls and the resistance of blood flow through the vascular bed. When resistance is greater due to narrowing of the vascular bed, the heart must work harder to propel the blood. The heart's

ability to overcome resistance affects the pressure as well as the resistance itself. The volume of circulating blood also affects the pressure with which the blood pushes against the arterial walls. An increase in blood volume tends to increase the cardiac output as well as increase the push on the arterial walls.

When the heart is forced to work harder than normal, it becomes enlarged. With slight enlargement, the heart can still meet body demands; however, significant enlargement impairs efficiency and hampers its ability to meet body demands, thus causing many complications. Arteries and arterioles may become hardened and less elastic over a period of time; this process occurs at a much faster rate in those who suffer from hypertension. There has been much controversy over whether the lack of elasticity causes peripheral resistance and in turn hypertension or whether hypertension causes inelasticity and in turn peripheral resistance. The Framingham Study has added some evidence to assist in the conclusion that hypertension is influential in speeding up the process of arterial hardening, but there are still unanswered questions as to how and why this occurs (Guyton, 1979; Dawber, 1980; American Heart Association, 1983).

Psychoanalysts have described the hypertensive as anxious, unduly tentative, and unable to express anger and hostility; but efforts to identify the predisposing hypertensive personality have been unsuccessful. Hokanson and Burgess (1962) found that unexpressed anger causes greater blood pressure elevation than expressed anger. Harburg, Blakelock and Roeper (1979) demonstrated this idea in the study of workers' responses to the boss's anger. They classified the responses as: anger-in, which is walking away from the situation; anger-out, which is reporting the

boss to the union; and reflect, which is trying to reason with the boss. Hypertension was found to be lowest for the person using the reflect response, and there was little difference between the other two response classifications. Singer (1974) suggests that being involved with another person can produce either positive or negative emotions affecting blood pressure. Since the involvement refers to the investment of one's self, hypertensives are considered more involved with predominantly negative affect (Boer, Collins, Bursonoff, and Ketchel, 1979). Weiner (1979) noted that no psychological characteristic is uniform among hypertensives, and he believes that even though anger and aggression play a role in hypertension, there are some unknown physiological predispositions to the disease.

Cost of Hypertension

The usual cost of the treatment of hypertension to the individual is not as great as for many other disorders. Most hypertension medications, such as diuretics and antihypertensives, are not among the most expensive drugs on the market; the average monthly cost to the individual is about twenty dollars, if there are no complications. Likewise diagnostic procedures are generally not expensive. Blood pressure checks, complete blood count, urinalysis, and histories are the most common diagnostic procedures, none of which requires hospitalization or expensive equipment.

The cost of hypertension can be increased significantly when the diseases resulting from uncontrolled hypertension are considered. The 1980 combined incidence of morbidity and mortality due to cardiovascular disease in the United States was 1,012,150 (National Center for Health Statistics,

1980), and about three percent of these were due to specific hypertensive disease while 73 percent were the result of strokes and heart attacks. Since the mortality of those with cardiovascular disease has been directly related to hypertension, the cost of other cardiovascular problems are added to the cost of the simple control of hypertension. In 1983, the estimated cost was $56.9 billion. This cost includes about $44.8 billion for medical costs and $12 billion for lost output due to disability. Thus, the impact of this disease becomes an important problem in health care and the economy (American Heart Association, 1983).

Risk Factors of Essential Hypertension

On the basis of epidemiologic studies, many factors have been found to be associated with blood pressure and there are several things which should be considered when assessing risk factors. The risk factors which cannot be controlled are heredity, gender, age, and race. There does not seem to be any doubt that individuals can have a genetic predisposition to hypertension. However, evidence does not clearly show whether genetic factors alone can produce hypertension, but a genetic component is likely in most hypertension (Kannel, 1980).

In most populations where age can be accurately determined, there is a rise in blood pressure with age in both sexes, and the prevalence data clearly indicates the increase of blood pressure with age in the United States. Since both systolic and diastolic blood pressures increase with age in adults, age may be included as a factor in hypertension; but a cause-effect relationship cannot be concluded since life style as well as other factors must be considered (Kannel, 1980).

The Framingham Study also documented that gender is influential in the rise of blood pressure. A rise in systolic pressure occurs earlier in the male than the female, but there is a leveling off around 50 years of age. The female, on the other hand, usually has a lower systolic pressure in early adulthood, but it rises more steeply and steadily with age. There is a crossover of the male and female systolic readings around 50, at which point the male's systolic pressure levels off and the female's systolic pressure continues to rise. This same pattern is generally true of the diastolic pressure, but rise is not as rapid with the normal aging process.

Information concerning the race of individuals as a risk factor reveals some persistent questions. Blacks have been found to have higher pressures than whites in most western cultures. The question of how early this difference appears is not clear. The adult black, as well as the adult white, shows a diastolic and systolic rise with age and a crossover in the sexes, but the crossover occurs earlier in the blacks (Kannel, 1980). The reasons for the difference in the black and white populations is uncertain. Attempts made to link blood pressure to social class, salt intake, psychologic stress, poor nutrition, and so forth have been inconsistent. While poverty and discrimination may play a role, blacks at every income level have been found to have higher blood pressures than whites. The poor, uneducated, and rural segments of the population have higher blood pressures than those of the general population; blacks are more common among this group (Kannel, 1980).

Some risk factors can be manipulated and sometimes controlled. These factors, if modified, may change blood pressure and/or may reverse some of the pathology. Controllable factors most often associated with

hypertension are: serum cholesterol, heart rate, stress, diet, and environmental factors. Even though these cannot be completely eliminated as risk factors, the individual does have some control over them.

The Framingham Study showed that increased weight and serum cholesterol were the two factors which showed the strongest relationship with a steeper rise in blood pressure in both sexes over a period of time. Increased hemoglobin, hematocrit levels, and heart rate were also associated with increased blood pressure, especially in men (Kannel, 1980). The diets in most industrialized societies contain more sodium chloride, saturated fats, wheat flour, sugar, canned meat, and canned fish than needed. The dietary factors most likely responsible for activating hypertension are salt and overeating; studies show a direct correlation between body weight and hypertension (Meyer, 1981; Dawber, 1980).

Although the genetic predispositions seen in the family history of many people may be powerful determinants in the development of hypertension, other factors such as environment may be necessary to trigger the disease. The reason genetic predispositions have been under such scrutiny is that researchers have been looking for that common factor present in each hypertensive which could aid in the early diagnosis and treatment of borderline and undiagnosed hypertensives.

Stress as a risk factor has been related to psychological well-being and to blood pressure elevation, but not everyone threatened with the same dilemmas suffer from elevated blood pressure. Twenty percent of the middle-aged, married men employed as blue collar workers who lost or were threatened with the loss of their jobs showed blood pressure increase in the anticipation phase. Gore (1978) took the same data used by Kasl and Cobb (1970) and showed how social support may play a role in moderating

the effect of depression, illness, and cholesterol. French (1974) studied men at the Kennedy Space Center and showed an association between diastolic pressure and workload when there was a poor relationship existent between subordinates of immediate superiors.

Several studies have shown an association between job stressors and psychological health. Caplan et al. (1975) studied 23 occupations and found that there was no correlation between physical strain and job stress variables, but the measures of psychological strain (boredom) and mental health (depression and anxiety) were related to job stress. Other researchers have also shown psychological strain to be related to blood pressure. More pronounced job stress was observed in the form of low utilization of abilities, boredom, anxiety, depression, irritation, and dissatisfaction with workload.

House (1979) studied blue collar workers in a manufacturing plant. Eight of 12 measures of job pressures were significantly associated with systolic hypertension. Workers involved in jobs having high role conflict, termination possibilities, high workload, and low job satisfaction had greater incidence of hypertension. Cooper et al. (1978) studied a group of dentists but found that the characteristics associated with higher blood pressure were the same as those contributing to higher psychiatric morbidity in other occupations: anxiety levels, administrative difficulties, difficult patients, and maintaining a practice.

Cobb and Rose (1973) noted in a study comparing men in high stress occupations, such as air traffic controllers, with men exposed to less stress, such as second class airmen, that there was a difference in the blood pressure level. The air controllers had a higher blood pressure and a greater incidence of hypertension than the airmen. Air controllers

who worked in busier airports had more hypertension than those who were under less stress.

The role of psychologic factors in the development of hypertension is ambiguous. Several factors seem to emerge as common factors in individuals who develop the disease. Stressful events act as acute stimuli and chronic stress situations induce elevated blood pressure in most people observed (Weiner, 1979; Shapiro, 1979; Harrell, 1980). Hypertensives have been found to have greater pressor responses than normotensives and repeated exposure to stressful events may lead to chronic elevated blood pressure (Falkner et al., 1981).

Hypertension as a Risk Factor

The importance of elevated blood pressure in morbidity and mortality from specific disorders has been recognized for many years. Insurance companies calculate life expectancy and attach added risk of early death to those with hypertension. In 1949, when the Framingham Study was designed, a common factor, hypertension, was present among those people who died from atherosclerotic diseases. The Framingham Study determined that the presence of hypertension does have an adverse affect on the arterial walls. When hypertension is present, the arterial walls become less elastic at an earlier age. The relationship of hypertension to elasticity has been explored, but definite answers are still to be found (Dawber, 1980).

When blood pressure was evaluated in terms of coronary heart disease development, a strong relationship was found. A hypertensive, young man followed for 24 years was shown to have twice the risk of developing coronary heart disease than the normotensive. A relationship also exists

between the incidence of coronary heart disease and the rise in the diastolic and systolic blood pressure. The isolated systolic pressure should not be ignored because the Framingham Study data showed that a man 30-39 years of age with a systolic pressure of 160-179 mm. Hg has a relative risk of coronary heart disease three times greater than the man with a systolic pressure of less than 120. Even though the overall relation of diastolic pressure to disease was found to be similar to that of systolic pressure, the gradient of increase was not as steep. Essentially the same relationship was observed for total coronary heart disease (Dawber, 1980).

Haines and Wood (1981) found that the population in general and those affected by hypertension have become increasingly more aware of the risks of elevated blood pressure. Even though more people are aware of the risks and complications, the hypertensive treatment dropout rate has not shown a substantial decrease. Although diagnostic and treatment costs are low and more people are identified and treated early, the continuous high treatment dropout rate indicates that more research is needed to control this disease.

Because of the relationship between hypertension and cardiovascular heart disease, the total cost of hypertension is much greater than that seen from a superficial look at diagnosis and treatment costs. Costs could be significantly reduced by shifting the emphasis from the treatment of the end results to the prevention of adverse results of uncontrolled hypertension. The fact that social support has been found to have a buffering effect in stressful life events makes it important to explore its effect on blood pressure and on hypertension. Since it is a stress buffer, it may also be influential in blood pressure reduction.

The Nature of Social Support

In recent years social support has gained a great deal of attention from researchers affiliated with health care. Numerous attempts have been made to define it and to determine its effect on health and illness.

According to Cobb (1979), there are four kinds of support; the first and most important type is social support, which is often called communicated caring. Social support has three components and is informational in nature. The three components are: emotional support, which leads to a feeling of being loved; esteem support, which leads to a feeling of being valued or esteemed; and network support, leading to the feeling that one has a defined position in the network of communication and mutual obligation. The second kind of support is instrumental support or counseling, which involves guiding one to better coping and adaptation. The third kind is active support, which is often seen as what mothers do for infants and what nurses do for patients. The fourth is material support, which provides goods and technical services.

Notice that instrumental support, active support, and material support all involve or imply the use of social support; for example, counseling requires someone to counsel or communicate, caring for a patient conveys interest and love, as well as providing assistance and technical service. Cobb (1976) feels that social support is more important than any of the other forms of support because it gives the individual a sense of self-worth through the enhancing of self-esteem and also gives the individual a sense of identity by providing a place in a social network.

Since Kahn (1979) defined social support and developed his theory based on Caplan's Model and Cobb's definitions of support, it seems logical to show how Kahn's theory of affect, affirmation, aid, and convoy fits the broader perspective. Emotional support, which is information that one is cared for and loved, is passed on or transmitted in a close relationship requiring trust and is the equivalent of Kahn's concept of positive affect. Esteem support affirms that one is respected or valued, leads to a feeling of re-affirmation of one's personal worth, and assures one of a separate identity. Kahn called esteem support "affirmation."

In Kahn's theory, aid includes active support and material support. Active support places one in a network of obligation and communication needs which must be shared. Everyone in the network has knowledge of his or her obligation. This network has three types of information. The first is "history" of the network; if used correctly, it can help make the network stronger. Rather than history, Kahn uses "convoy" here; he explains convoy as a continuing evaluation of the network of support through the life span. The second type of information is related to goods and services, i.e., equipment, special skills, and technical information; this information is a good definition of what Kahn called "aid." The third type of information contains information that is common and shared with concern for life and mutual defense.

Support as a Part of a Network

Social support systems are often thought of in terms of a formally recognized entity such as a family, church, organization, neighborhood, and so forth. Often a combination of these groups actively comprises the reference group of the individual. The concept of social network provides

a way to cut across these formal boundries and a way to examine the total social field within which the individual is embedded. The ability to examine the social field can assist care givers in their efforts to be providers of help.

The family for decades has been the major source of mutual help and support for the individuals within the system. More recently, with greater social mobility and the increase in the number of elderly, specialized services have been developed to care for the aged and sick. Even within contemporary society, the family persists as the major source of help for the elderly. The relationship between older people and their grown children does not necessarily depend on joint living. The emotional bond is the primary factor in this relationship even though they may not share a house. Mutual assistance often continues between parents and younger couples even though the couple and the parents are separated by distance; support is more than living next door (Shanas, 1979).

The geographic mobility of society and the high standard of living desired by individuals have caused changes in the family unit. The family, as a comprehensive unit, is no longer able to offer the alternative environmental resources, forcing the individual to look beyond the family into what we will call a social network. The network functions, of which the family is a component, are support, advice, and feedback. Support is defined as any action or behavior which assists the focal person of the network in meeting personal goals. Advice is defined as provision for information on guidance, and feedback is defined as a provision of evaluation. Froland et al. (1979) were able to identify the sources of support within the network of the sample population. Family, friends, relatives, agencies, and professionals were the major groups.

The study of social network is theoretically rooted in social and cultural anthropology and was first defined by Bott (1971) as "all or some of the social units (individual or groups) with whom a particular individual or group is in contact." The number of members or size of the network is thus regarded as a primary network characteristic, presumed to reflect the potential resources available to any network member (Horwitz, 1977).

Mitchell (1969) provided a definition of social network with a greater emphasis upon the relationships existing among network members. He said it is "a specific set of linkages among a defined set of persons." The relationships are further assumed to be explanatory or even causal because the linkages may be used to interpret the behavior of those involved. The density of networks has been described by Hammer (1963) as connectedness. Within a network of high density, enough members know each other so that linkages or connections approach the maximum number possible for a network of a given size.

Families residing together typically represent a network of high density or saturation, where individual linkages are embedded in the overlapping relationships among other members. In contrast to such embedded networks, conditions of low density may exist so that there are few linkages among network members beyond their dyadic contacts with the focal persons. A number of descriptive terms, radial versus interlocking, differentiated versus undifferentiated, cosmopolitan versus local, have been used to distinguish between these conditions of low versus high density (McKinlay, 1973; Walker, MacBride, and Vachon, 1977). For the present purposes, networks exhibiting high density will be referred to as embedded, while those of low density will be termed radial.

To date, Tolsdorf (1976) has published the most elegant structural analysis of social networks in an applied setting. Tolsdorf's approach emphasized the interactive relationship between the patient and his social environment and attempted to identify the individual's orientation toward the network as well as its structural characteristics. In comparison with 10 medical patients, the psychiatric subjects expressed more negative network orientations, reflecting a lack of trust of the network and the belief that it lacked the resources to be of help. When faced with stressful situations, the psychiatric patients were unable to mobilize the network but rather used withdrawal as a coping mechanism.

Structurally, the psychiatric group reported networks of smaller size and greater density compared with the medical patients. These differences failed to reach statistical significance; however, the networks of the psychiatric patients contained a significantly higher proportion of kinship members, and a greater proportion of the linkages existing among members of the network involved family ties. Although the observed predominance of kinship relations may also occur in the networks of deinstitutionalized patients, caution is warranted in extending these findings to such a population because all of the above subjects were male and all were undergoing their first psychiatric admission (Tolsdorf, 1976).

In an attempt to obtain quantitative information regarding the roles occupied by the subjects within their social networks, Tolsdorf analyzed the network structure in terms of the content areas and functions served by the subjects' relationship with each network member. Relative to the medical patients, the relationships of the psychiatric subjects appeared to be lower in intimacy based on the significantly fewer multidimensional relationships. While the medical subjects tended to maintain

a balanced functional exchange with other network members, psychiatric subjects reported many more asymmetric relationships. The subjects in Tolsdorf's psychiatric group thus appear to occupy a largely dependent role characterized by few intimate relationships (Tolsdorf, 1976).

Density is thought to be a crucial dimension of social network analysis (Mitchell, 1969; Bott, 1971) and may have particular relevance for a deinstitutionalized population because close-knit networks are often regarded as providing greater support (Caplan, 1974). In a review of network processes as mediators of social support, Mitchell and Trickett (1980) have pointed to the difficulty of defining the characteristics of a supportive network. Studies relating density and support have similarly indicated that these variables are related in a complex fashion. Among the college students studied by Hirsch (1979), however, lower density was significantly associated with greater support satisfaction. While students residing in high density embedded networks reported receiving significantly more support, they also appeared to find this support less satisfying. The presence of multidimensional relationships was also predictive of support satisfaction, and Hirsch's interpretation of the results focused upon the flexibility of roles possible in networks of low density and in multidimensional relationships. Such flexibility may be suitable for the life circumstances of a college student and may also provide greater freedom for adaptation under conditions of change.

To test the latter notion, a subsequent study (Hirsch, 1980) made use of 34 women as subjects who were undergoing major role changes (recent widowhood, returning to college, and so forth) and the accompanying stress. A significant negative relationship was observed between density and adjustment as measured on standard sympton checklists, showing that

subjects in networks of low density exhibited better adaptation to their new status. Higher correlations in this direction were observed when densities were separately analyzed for nuclear family members and friends, so that subjects whose friends were not also friends of other family members tended to report fewer symptoms. Under the stressful circumstances studied by Hirsch, involvement in close-knit, high density networks appeared to hamper the adaptation of these women, a finding which raises questions about the nature of social support. The subjects who coped best were those who maintained social contacts apart from the traditional source of social support, their families.

Wilcox (1981) in his study of recently separated women also found differences in post-separation adjustment favoring subjects who resided in low density networks. While the structural characteristics of successfully and unsuccessfully adjusted subjects were identical in most respects prior to separation, the successful subjects, like Hirsch's (1980) successful subjects, tended to have preseparation network involvements apart from those of their husbands. The findings of the two studies are congruent in associating dense, presumably supportive networks with poorer ones coping under stress; for each of these groups of women under stress, greater dependence upon family members as sources of support appears to have been a hindrance to adjustment.

Although the close-knit social network containing a large proportion of family members may be to some extent a cultural ideal (Hirsch, 1981), the literature relating network density with support suggests that, for women coping with the crisis of major changes in lifestyle at least, such networks are associated with greater distress and poorer adaptation. Higher density networks may then be better providers of emotional support,

as a number of theorists have suggested (Caplan, 1974; Walker, MacBride, and Vahon, 1977). No single type of network, however, can be expected to meet the diverse needs of persons at all stages of crisis and adaptation. The data available (Hirsch, 1980; Wilcox, 1981) suggest that the kinds of support available in embedded networks function in opposition to transitions necessary in changing roles (Hirsch, 1981), possibly in resistance to associated network reorganization (Hammer, 1963). High density network fosters a supportive atmosphere which reduces the distress experienced by the individual as well as any motivation for change. At the same time, embedded networks are more encapsulated, however, and may restrict the individual's access to information regarding his own difficulties and the helping resources available beyond those contained in or sanctioned by the social network. While the use of many resources have been shown to be associated with favorable resolution of life crises, the sanctioning of resources by the network may have a decided effect upon the decision to seek help.

Network functions that influence help-seeking may be grouped under the headings of support and referral. In its support function, the social network may reduce the need for further help-seeking by providing instrumental help and affective support in the face of stress arising from events such as divorce. The referral function of the social network through help-seeking is directed to agents outside the network. Referral may be active, taking the form of advising the help-seeker of services available, or passive in nature, reflecting norms within the network or attitudes toward help-seeking. Help-seeking on the part of network members may be more likely in the absence of strong supportive relationships; persons who make use of mental health facilities tend to describe themselves

as isolated or poorly integrated within their social networks (Tolsdorf, 1976).

Role of Social Support on Health and Illness

Social support has been identified as having a varied effect on health and illness. Some see social support as a buffer against illness while others relate it to the individual's susceptibility to disease. In the last two decades, the emphasis of many studies has been on the potential causal effect of life changes and social support on illness. For example, in a study by Kagan and Levi (1974), the relationship between psychosocial stimuli and disease was explored. Their idea was that psychosocial stimuli and the psychobiological program of an individual, including heredity and earlier environmental exposure, may or may not produce an emotional or physiological response. If a response occurs, the next step in the disease progression would be the precursors leading to the manifestation of disease. The process may be promoted or prevented by interacting variables which alter the actions of the causative factor by intervening at one of the stages.

Upon evaluation, a suspected relationship between hypertension and psychosocial stimuli was found but definite proof was not established. Reactions to certain stimuli raised the blood pressure and some who had repeated stimuli and hereditary programming developed hypertension. The evidence was not sufficient to make a definite relationship (Kagan and Levi, 1974).

Cassel (1976) studied the effect of social-environmental factors on the human resistance to environmental disease agents. He concluded that changes in the social environment act as predisposing factors which

increase host susceptibility to disease. The mechanism postulated as being involved in the increased susceptibility was that of social-environmental changes that, in turn, lead to alterations in neuro-endocrine balance.

Cobb (1976) suggested that social support functions as a moderating variable that facilitates coping with crisis, change, and adaptation. The moderating effect was somewhat confirmed, or at least related to coping with crisis, with the documentation that psychosocial factors play a role in human diseases and disorders of pregnancy. Nuckolls et al. (1971) found that in a sample of 170 women the complications of pregnancy were three times higher in women with high stress and low psychosocial assets, which included social support, than among women with equally high stress but with high psychosocial assets. Taken alone, neither stressful situations nor availability of multiple psychosocial assets could be related to poor health. Nuckolls believed that the balance between stressful situations and psychological assets should be assessed as an explanation of increased disease susceptibility (Nuckolls et al., 1971).

Several other studies have further explored and have confirmed the buffering effect of social support. Men who were laid off from their jobs, or were threatened with a lay-off, were found to have less severe health and psychological consequences related to job loss and the unemployment experience when support was available. The study included two groups, one in a large city and one in a small rural community. The analysis revealed evidence that the effect of job loss on each group was different. Even though the rural men had more weeks of unemployment, they had less abnormal change and appeared to return to normal more rapidly than the urban men. This smaller impact on the rural group suggests that

social contact played an important role in adaptation (Kaplan, Cassel, and Gore, 1977; Gore, 1978). Since baseline values for judging the effects of unemployment stress and social support were difficult to identify, generalization was limited.

Lin, Ensel, Simeone, and Kuo (1979) examined the role of social support in relation to stressful life events and subsequent illness in 550 Chinese-Americans; their findings showed the expected relationship between stressful life events and illness. The study also showed a significant contribution to illness systems by social support with the social support scale explaining more than twice as much of the illness variance as stressful life events. These findings strongly suggested that social support may be just as important as stressful life events in influencing the development of illness symptoms. The study failed to show a relationship between stressors and social support and did not support the explanation that social support precedes and negatively affects stressors; no strong support of buffering was found in this study.

Stressful life events have consistently been found to be significant in psychosocial distress. The buffering hypothesis used by Wilcox (1981) states that with a high level of life change social support protects a person from deleterious effects, but at low levels of life change, social support is not related. The five questionnaires (Langer Sympton Checklist, Profile of Mood States--Tension Subscale, Psychiatric Epidemiology Research Interview Life Event Scale, Social Support Index, and the Social Support Questionnaire) were given to 500 subjects. The results of the Wilcox study provide a clear support for social support as a mediator or buffer between life stress and psychological distress. The study, while pointing to the importance of social support in the stress

process, did not indicate the manner in which social support functions in buffering the individual from the harmful consequences of social stressors (Wilcox, 1981).

The effects of social support or network on disease resistance and mortality were explored in a nine-year study of Alameda County, California, residents. The subjects' social and community ties were found to be related to the risk of mortality. The relationships which were examined were marriage, contacts with friends and relatives, church membership, and group associations. People with social ties and relationships had lower mortality rates than people without ties. Each source was found to be independent of the others. In each instance, people who were not married but had contact with friends and relatives had mortality rates equal to those who were married and had fewer relatives. Only in the absence of contact with friends when there was no family was the risk of death increased significantly. Thus the findings of the study suggested that social isolation may have an adverse effect on health and that social factors do influence host resistance and affect vulnerability to disease (Berkman and Syme, 1979).

The role of social support in health and disease has received a great deal of attention in the literature and has been identified as having a protective or buffering effect on the stress factors causing disease. Little evidence can be found about the dynamics of social support during illness and its role in coping with disease. Marowski, Penman, and Schmitt (1978) proposed that measures of social support include:

> 1. an inventory of persons or institutions the individual believes constitute his support system and some measure of the nature, strength, and availability of their support in health and illness.
> 2. an assessment of the background characteristics, which define the individual's social obligations within the primary support groups.

3. an assessment of the individual's beliefs about the sources of support available to him in meeting his role obligation during illness.
4. a measure of the individual's patterns of social affiliations.
5. a measure of his need for social affiliation.

Measurement Tools for Social Support

Several tools have been developed to measure the multidimensional aspects of social support. The Patient Resource Questionnaire (PRQ), developed by Brandt and Weinert (1981), has two parts with the first one identifying the sources of support. The second part is composed of 25 items, five for each of Weiss's five dimensions of support (intimacy, social integration, nurturance, worth, and assistance).

A second tool for measuring social support has been developed by Norbeck et al. (1981). This tool is based on the theory developed by Kahn (1979). Through seven questions, all related to the personal relationship inventory, the individual names the resource people who provide affect, affirmation, or aid. The tool also elicits frequency of contact and duration while noting any loss within a year. The Norbeck Social Support Questionnaire was developed for studying social support and to add knowledge to the scientific base needed for the measurement of social support adequacy. This information about social support adequacy can then be used to plan and determine nursing interventions. The model for planning and intervening based on an assessment of social support adequacy was discussed in Chapter 1.

Summary

This review of the literature confirmed social support as a part of social network which can influence health and illness. Some researchers

believe that the best way to benefit from the knowledge that social support influences health and illness is through application to patient care. Health care professionals, especially nurses, can certainly offer more holistic care and better information when they clearly understand the individual person's needs, including the social support needs. The Norbeck Model mentioned in the previous paragraph focuses on the use of social support in patient intervention, and the nursing process offers the method for carrying out an assessment of physical as well as psychosocial needs. Social support is a proven influential factor in improving wellness and in moderating illness, and the model shows how nurses can include this support in their assessment, planning, and intervention of patient care regardless of the setting.

Chapter 3

METHODOLOGY

The purpose of this non-experimental descriptive study was to determine the relationship, if any, between social support and blood pressures in mild and moderate hypertensive clients. Since the study involved observation but no manipulation of variables, the statement by Abdellah and Levine (1965) can be applied to this study.

> The non-experimental design is especially suited for such studies, since description implies natural observation of the research subjects without deliberate manipulation of the variables or control over the research setting (Abdellah and Levine, 1965:211).

Setting

The study was conducted in two locations. Ten subjects were identified from the client population of the Family Practice Clinic operated by Riverside Hospital in Newport News, Virginia. The clinic was staffed by Family Practice residents, who were a part of the Family Practice Residency Program at Riverside Hospital, consulting physicians to the program, registered nurses, licensed practical nurses, and clerks. The clinic also served as a clinical practice setting for nursing students from Riverside Hospital School of Nursing and was housed in the Peninsula Health Center. The clinic was used primarily by lower income clients and operated as a family practice; clients were seen by appointment five days a week from 8 a.m. to 4 p.m. Emergencies were seen in Riverside Emergency Room after 4 p.m. and on weekends.

Twenty subjects were identified in the General Medical Clinic, which was the second setting for the study. The clinic was staffed by one full-time physician, one full-time family nurse practitioner, two part-time certified nurse practitioners, three registered nurses, two aides, and a clerk. The General Medical Clinic operated three days a week at the Peninsula Health Center in Newport News, Virginia. Since the clinic had a full staff one day each week, the largest number of clients were seen on that day. The majority of the clients were seen by appointment, but walk-ins were seen after all the scheduled clients had been seen. Pre-employment physicals were also done by appointment in this clinic. This clinic also primarily served clients from the lower socioeconomic segment of the population.

Sample

The subjects (N = 30) were selected as a convenience sample from among the mild and moderate hypertensive clients seen by the physicians in two clinic facilities in Southeastern Virginia. Of the 91 hypertensives identified, 30 met the criteria, three declined to participate, and 38 were excluded because of being diagnosed for more than two years, 12 because of diabetes, one because of renal failure, and seven because of severe hypertension. The criteria for selection of subjects and the rationale are as follows:

1. Twenty-one years of age or older and mentally and physically competent enough to assume responsibility for his or her own care/regimen.

2. Diagnosed as having mild or moderate essential hypertension within the last one to two years and seen in either the Family Practice Clinic or the General Medical Clinic. Studies document that non-compliance

to the regimen becomes an increasing problem after two years (Luntz, 1960; Marston, 1970). Therefore non-compliance could have biased the data results to a greater extent if clients diagnosed more than two years ago had been used.

3. No diagnosis of diabetes mellitus, heart disease, or end organ disease, such as retinopathy or renal failure, resulting from compromised microcirculation. These subjects were excluded because other treatment regimens could have had a biasing effect on the results.

4. Consent to participate in the study.

Instrumentation

The instrument chosen for measuring social support was the Norbeck Social Support Questionnaire (NSSQ), (Appendix A). The NSSQ was developed by Norbeck (1981) and was designed to measure the multiple dimensions of social support based on Kahn's conceptual definition of social support (Kahn, 1979). The instrument was designed in sections: Total Function, Total Network, and Total Loss; each of these sections has three subscales.

The NSSQ has a numbered personal network list. Scores for this list range from 1-24, depending on the number of persons in the network. Eight items are then related to each person in the social network. The response categories for each item are: 1--not at all, 2--a little, 3--moderately, 4--quite a bit, or 5--a great deal. The network list asks for the initials of those persons in their social network to indicate the type of relationship existing between themselves and that person. The following code was used to identify the relationship:

0 = none
1 = spouse or partner
2 = family or relative

3 = friends
4 = work or school associates
5 = neighbors
6 = health care provider
7 = counselor or therapist
8 = minister, priest, or rabbi
9 = other

The three subscales of the three sections are obtained from responses to 1-9 pertaining to the personal network. Affect, affirmation, and aid are each measured by the responses to two items in Items 1-6 relating to Total Function. The scores of the six items are combined to form a single score for Total Function. Affect is measured by adding the responses of Items 1 and 2. Affirmation is measured by adding the responses of Items 3 and 4, and aid is measured by adding responses from Items 5 and 6. Affect, affirmation, and aid scores are totaled to give the Total Function score. The Total Network properties' score is obtained by the addition of the total number of persons listed in the network, the Duration (Item 7), and Frequency (Item 8). The Total Loss is calculated from Items 9, 9a, and 9b. The recent loss item is coded 0 for no and 1 for yes because special scoring is required to avoid problems with missing data (Norbeck, 1981).

The NSSQ was tested for test-retest reliability over a five- to six-week period, and the coefficient range was $r = .56$ to $.88$. Stability was tested by administering the NSSQ to 67 subjects. The first test and the retest were one week apart to reduce the likelihood of tapping life changes in the social networks (Norbeck, 1983).

Internal consistency was tested through intercorrelations among all items, and the spread was $r = .85$ to $.92$. The correlation between the two affect items was $r = .97$; between the two affirmation items, $r = .96$; and between the two aid items, $r = .89$. The affect and affirmation

items were highly related, i.e., r = .95 to .98, which indicates that they may not be distinct. Due to the high internal consistency, for additional analysis the items were collapsed into three variables: Total Function (affect, affirmation, and aid); Total Network (number in the network, duration of relationships, and frequency of contact); and Total Loss (number of categories of persons lost as well as amount of support lost).

Criterion-related validity was established at r = .35 to r = .78. The instruments used for the correlation were the Personal Resource Questionnaire, the Life Experiences Survey, and the Profile of Mood Status (Norbeck, 1983).

The instruments used for measuring blood pressure were an aneroid sphygmomanometer calibrated for accuracy prior to its use in the study and a British Medicine Supply stethoscope, both supplied by the researcher and used to take the blood pressure of all subjects.

Procedure

Ten subjects were selected from the population seen in Family Practice Clinic during the week of June 12, 1983. The researcher selected the subjects by reviewing all the charts on the day prior to the subject's clinic appointment. As hypertensives were identified by diagnosis, the charts were reviewed to see whether study criteria, stated previously in the description of the sample, could be met. Those hypertensives meeting the criteria were approached by the researcher when they arrived for their appointment. The study was explained and willingness to participate in the study was established. When willingness was established, the subject was taken by the researcher to an empty office where the study was fully explained, a consent form was signed, and a blood pressure was taken by

the researcher. Once consent for participation was gained, the researcher also obtained the date of diagnosis, medication and treatment regimen, and the diagnostic blood pressure from the chart. The subject then completed the NSSQ while waiting to be seen by the physician. The researcher remained with the subject to answer questions as they arose.

Subject selection had to be discontinued in Family Practice Clinic after one week of data collection. A five-year study, about which the researcher was unaware, was beginning. Those working with that study were concerned about possible bias of either or both studies. The ten subjects selected in that week (N = 10) were used in the study as a part of the total number (N = 30).

Beginning August, 1983, 20 subjects were selected from the population seen by the physicians and the nurse practitioners in General Medical Clinic. The subjects were selected on Mondays, Wednesdays, and Fridays during the month of August and on Wednesdays during the first three weeks of September. In September, Wednesday was selected because the clinic was fully staffed and more clients came to the clinic for appointments on that day. Since the researcher could only be available one day each week, Wednesday was the obvious choice.

The procedure for selection of subjects in General Medical Clinic was somewhat different from the selection procedure in Family Practice Clinic. The change was made necessary because the researcher, not being a Health Department employee, was not allowed to look at charts before obtaining consent from the subjects. Anyone identified as having a diagnosis of hypertension was referred to the researcher for explanation of the study and consent. Each morning as subjects arrived for their appointments, the nurse at the desk noted whether the subjects had a diagnosis

of hypertension and notified the researcher. The subject was approached by the researcher and asked if he/she would be willing to participate in the study. The subjects willing to participate were taken to an office where the study was explained, consent was obtained, and the blood pressure was taken by the researcher. After the consent was obtained, the chart was consulted to establish the subject's eligibility for the study. If the criteria were met, the subject was asked to fill out the NSSQ while waiting to be seen by the doctor or nurse practitioner. The diagnostic blood pressure, medication and treatment regimen, and date of diagnosis were taken from the chart after the consent was obtained. The researcher remained in the office to answer questions as they arose.

Any hypertensive subjects who were missed by the researcher prior to seeing the physician or nurse practitioner were referred to the researcher at the end of their visit. All who met the criteria and gave consent were included in the study.

The procedure used for obtaining the observation blood pressure was carried out consistently with each subject. Each subject was asked to sit in the chair beside a desk, facing and to the left of the researcher. The subject rested the left elbow on the desk and the inflatable bag cuff was placed snugly around the arm and positioned so that the bag was over the artery at the approximate level of the heart. The brachial artery was then palpated and auscultated to determine the exact location for best auscultation of the blood pressure sounds. Once this location was established, the cuff was inflated until no sound could be heard and the cuff was inflated 20 mm. Hg beyond that point. The cuff was then slowly and evenly deflated until the first sound (Korotkov sound Phase I) was heard. The deflation process was continued until the change (Phase IV) was heard

and finally the last sound (Phase V) was heard. The researcher recorded the very first and last sounds heard (Phase I and V).

Chapter 4

DATA ANALYSIS AND INTERPRETATION

A non-experimental design was used in this descriptive study to determine what effect, if any, social support has on the blood pressure of mild and moderate hypertensive subjects. The subjects had been diagnosed as having mild or moderate hypertension within the last two years and had been placed on some form of treatment to reduce the blood pressure.

The subjects were all on some treatment regimen which was not controlled for in the selection of subjects but may have been a factor influencing the outcome of the study. None of the subjects was on a specific sodium restricted diet, but all had been instructed to watch their salt intake and not to add salt to their food at the table. Two subjects had placed the self-restriction of no bacon or pork products and no salted snack foods such as chips and nuts in an attempt to keep from having to take additional medicine. None of the subjects were on any special exercise program as a part of their treatment.

The subjects were taking a variety of medications for their hypertension. Among those being taken were Hydrochlorothiazide, Diazide, Hygroton, Motrin, Inderal, Hydropress, and Atenoral. Twenty-six of the medications were taken singularly, and four medications were taken in conjunction with Inderal (Appendix E, Table 2). All subjects claimed to be taking the medications as directed by the physician. When the observation blood pressure was compared with the diagnostic blood pressure,

each subject showed a reduction in his blood pressure since the initiation of treatment.

Data about each subject's social support network were obtained through the use of the Norbeck Social Support Questionnaire (NSSQ) (Norbeck, 1981). The questionnaire gathered data which included demographic information, frequency of contact with each member of the social support network, the duration of each contact, and the total function of the network. The Total Function score was obtained by adding the scores from the first six items about affect, affirmation, and aid. The Net Social Support score was obtained by adding the totals for Frequency, Duration, and Number in the Network and then subtracting the number representing the Total Loss which was calculated from the summation of Items 9, 9a, and 9b (Appendix A).

Once the 30 questionnaires were completed, the data were transferred to a supplemental scoring sheet where scores were calculated for each of the eight items comprising the subject's network. Pearson's Product Moment Correlation Coefficient was calculated from the totaled scores, as well as for the individual components of the total scores and the observed systolic and observed diastolic blood pressures of the study subjects. Both the observed diastolic and systolic blood pressures were used in the correlations because recent follow-up on the Framingham Study showed both diastolic and systolic blood pressures to be important indicators of hypertension. Even when only the systolic pressure measurement showed elevation, many of the expected complications of chronic hypertension still developed at a later time (Dawber, 1980). It is rare that diastolic hypertension alone occurs except in children, but systolic hypertension alone is found, particularly in the elderly population and also among

young people with hyperdynamic circulation in which the cardiac output is increased by elevation in heart rate and stroke volume. The heart rate abnormality in these young people is due to increased adrenergic activity and decreased parasympathetic inhibition (Dustan, 1983).

Descriptive Data

The convenience sample of 30 subjects was selected from those attending either Family Practice Clinic or General Medical Clinic in a Southeastern Virginia city. All who met the criteria and were willing to participate were included in the study. Sample characteristics or demographic data can be seen in Table 1.

The ages of the subjects ranged from 29 to 83 years of age with a mean age of 54.23 years, and a median of 49 with a standard deviation of 13.79. In this sample the mean was the most representative measure of central tendency.

The distribution of the subjects by gender showed a ratio of almost three women to each man, which could be related to the fact that men do not go to the physician for care as often as women, making the female sex ratio of the clinic correspond with the pattern seen in the general population for this age group.

The subjects by race showed the percentage of Caucasians to be larger than the Blacks, Asians, or Native Americans. The Caucasian subjects outnumbered the Blacks by a ratio of almost two to one; but when the non-Caucasian subjects were combined, the ratio was three Caucasians to two non-Caucasians.

The distribution by marital status was also tabulated, and the largest group in the marital status category was found to be the married

Table 1

Summary of Sample Characteristics
(N = 30)

Demographic Variable	Total Number Subjects	Percentage Subjects
Age in years		
≥29	1	3.3%
30-44	5	16.7%
45-59	17	53.3%
60-74	5	16.7%
≥75	3	10.0%
	30	100.0%
Race		
Asian	1	3.3%
Black	10	33.3%
Caucasian	18	60.0%
Native American	1	3.3%
	30	99.9%
Gender		
Male	8	26.7%
Female	22	73.3%
	30	100.0%
Marital Status		
Never Married	1	3.3%
Married	15	50.0%
Divorced/Separated	9	30.0%
Widowed	5	16.7%
	30	100.0%
Education in Years		
1-7	4	13.4%
8-12	19	63.3%
13-16	6	20.0%
≥17	1	3.3%
	30	100.0%

individuals with 15 persons, making the group equal in number to the other categories combined. The marital status category having the largest frequency, other than married individuals, was the divorced or separated with a total of nine in the category; the widowed category was next with five persons in the category.

Educational status was defined as the number of years of formal school completed. The mode of 12 was the most representative measure of central tendency for the educational status. The range was 15 with the standard deviation at 3.48. The percentage of the subjects completing eight years of school was 30% while 23% of the subjects finished 12 years of school. The numbers were distributed evenly over the other years which indicated that almost 50% of the subjects either finished eighth grade or twelfth grade.

A summary of the correlations of blood pressures and social support components can be seen in Table 2. The group mean of diagnostic blood pressures was 164.2 for the systolic pressures and 100 for the diastolic pressures with a standard deviation of 15.13 for the systolic and 6.68 for the diastolic blood pressures. The group mean of the observation blood pressures was 139.3 for the systolic pressures and 87.6 for the diastolic blood pressures. The standard deviation was 13.25 for the systolic and 6.74 for the diastolic blood pressures. Since the range was much smaller for the diastolic blood pressures, the standard deviation was less for the diastolic blood pressures in each case. The dispersion of the diagnostic systolic pressures showed the greatest standard deviation, which is probably due to the variety in systolic blood pressures seen before treatment. This characteristic of more variation, or greater range, in systolic blood pressure is not uncommon before and during

Table 2

Observed Diastolic and Systolic Blood Pressures to Social Support Components (N = 30)

Social Support Components	r Value	Significance Level
Diastolic Blood Pressure		
Net Social Support	-.634	.001*
Number in the Network	-.593	.001*
Frequency	-.608	.001*
Duration	-.592	.001*
Total Loss	.232	.217
Total Function	-.567	.001*
Affect	-.583	.001*
Affirmation	-.558	.001*
Aid	-.500	.005*
Systolic Blood Pressure		
Net Social Support	-.381	.038*
Number in the Network	-.355	.054*
Frequency	-.357	.053*
Duration	-.371	.043*
Total Loss	.097	.609
Total Function	-.431	.024*
Affect	-.363	.049*
Affirmation	-.390	.033*
Aid	-.431	.018*

*Statistically significant at $p \geq .05$.

treatment. The diastolic blood pressure range does not usually vary as much as the systolic since it is not as readily affected by stress, activity, and other factors under the parasympathetic control mechanisms.

Analysis of Data

Pearson's Product Moment Correlation Coefficient (r) was used to measure the relationship between the observed systolic blood pressures, observed diastolic blood pressures, and the component variables of the Net Social Support score. The Pearson's Product Moment Correlation Coefficient (r) was selected for use after the data (blood pressures and social support scores) were tested for normal distribution using the Kalmogorov-Smirnov Test. The critical value for the Kalmogorov-Smirnov test statistic (D) with Alpha = .05 and N = 30 was D = .24. In the sample data D = .1580 for social support, D = .1248 for observed systolic blood pressure and D = .1632 for observed diastolic blood pressure. Since none of the D values were greater than the critical value, there is no evidence that the distribution was not normal. Pearson's was the preferred test for correlation of normally distributed data since it is a more powerful test of correlation (Minton, 1984). The observed systolic and diastolic blood pressures of each subject in the sample were correlated with the Net Social Support, Number in the Network, Total Function (the sum of affect, affirmation, and aid), Frequency, Duration, and Total Loss scores (Table 2). The majority of the correlations made with the observed diastolic blood pressures were found to be highly correlated. The spread was r = -.5 to -.634 with a significance level having a spread of .001 to .005. Only aid, a component of the Total Function, had a significance level $\leq$ .001 which was still well within the acceptable area at .05.

The only component of social support which showed a positive correlation with the diastolic and systolic blood pressures was Total Loss, which indicated that the blood pressure increased as the Total Loss figure increased. The remaining variables indicated with their negative correlations that blood pressure decreased as the components of social support increased. When the observed systolic blood pressures were correlated with the components of the Net Social Support score, the correlations were not quite as strong. The spread of correlations was $r = -.355$ to $-.431$. The Total Loss component showed the only positive correlation as well as the only correlation which was not significant. The spread of the significance levels was from .054 to .018 with the exception of Total Loss which had a significance level of .609. The significance levels for the correlations of both observed systolic and diastolic blood pressures were less than .05, but the correlations and significance levels for the observed diastolic blood pressure were better than for systolic pressure. The reason for this is not evident but could be related to the variance of systolic pressure which was greater than that of the diastolic pressure. The fact that Total Function and its components were more highly correlated with the observed systolic blood pressure could be associated with the fact that the components of Total Function were more concerned with emotional relationships and feelings about one's support people. The greater significance of the correlations between Total Function and systolic blood pressure in this study was logical in light of Haynes' (1978) findings that emotions have been found to be more influential physiologically in increasing the systolic blood pressure.

Correlations were also compared for the observed systolic and diastolic blood pressures with demographic variables such as age, marital

status, and education. The correlations spread from r = -.082 to .035, which showed no significant correlations at a significance level of $\geq .05$. A summary of the correlations of demographic variables can be seen in Table 3.

An additional correlation as shown in Table 4 was done between the variables of social support and the observed diastolic and systolic blood pressures. The variables such as Number in the Network, Total Function, Frequency, Duration, and Total Loss were included as variables in the social support. The calculations showed high correlations among all the variables except Total Loss. The variables which showed the highest correlations were: Number in the Network, Duration, and Total Function. The individual components of social support as presented in NSSQ had such high internal correlations that the individual effect of the components on the blood pressure was difficult to ascertain; therefore, the results were not definitive for the individual components of social support. The low correlations of Total Loss with the other variables could have been due to the fact that Total Loss was included at the end of the scoring process rather than being included as an integral part of NSSQ.

Table 3

Observed Diastolic and Systolic Blood Pressures
and Demographic Factors
(N = 30)

Demographic	r Value	Significance Level
Diastolic Blood Pressure		
Age	.091	.632
Education	-.298	.110
Systolic Blood Pressure		
Age	.248	.186
Education	-.082	.667

None were statistically significant at $p \geq .05$

Table 4

Correlation Matrix of Variables
(N = 30)

	Observed Systolic BP	Observed Diastolic BP	Number in the Network	Total Function	Duration	Frequency	Total Loss
Observed Systolic Blood Pressure	1						
Observed Diastolic Blood Pressure	.625	1					
Number in the Network	-.355	-.593	1				
Total Function	-.431	-.567	.966	1			
Duration	-.371	-.592	.992	.966	1		
Frequency	-.357	-.608	.923	.906	.916	1	
Total Loss	.097	.232	.111	.134	.068	-.031	1

Chapter 5

CONCLUSION

Summary

This study was conducted to determine the relationship, if any, of social support on the blood pressures of mild and moderate hypertensives and to find evidence to support the hypothesis that there is an inverse relationship between the blood pressures of mild and moderate hypertensives and their social support. The convenience sample of 30 subjects was obtained from hypertensive clients attending two clinics in a Southeastern Virginia city. The clinics serve a population of generally low to low-middle socioeconomic status. The variables of blood pressure and social support were tested using Pearson's Product Moment Correlation Coefficient, and a significant correlation was found between the observed diastolic and systolic blood pressures and the Net Social Support score. These data supported the hypothesis that social support was inversely related to blood pressure in the case of the 30 subjects used in the study. The Net Social Support score and all its components, with the exception of Total Loss, showed significant correlations with the observed blood pressures of the subjects tested.

Conclusions

Since the subjects constituted a convenience sample rather than a probability sample, findings cannot be generalized to the general

population of mild and moderate hypertensives. The findings in this study suggest the following conclusions:

1. The Net Social Support score and the components of the Net Social Support score were found to have an inverse relationship to the blood pressures of the 30 mild and moderate hypertensive subjects included in the study. The relationship indicated that when the Net Social Support score increased the blood pressure decreased. The relationship also indicated that social support did have an effect on the blood pressures of the mild and moderate hypertensive subjects included in the study.

2. The demographic variables of age and education were not found to be inversely related to the blood pressures of the 30 mild and moderate hypertensives included in the study. The indications were that the blood pressures were more related to the subjects' involvement with people than with the physical characteristics and educational level.

3. The Net Social Support score showed a significant correlation to both systolic and diastolic blood pressure indicating that social support does affect that portion of the blood pressure indicating cardio-vascular disease as well as that portion under parasympathetic control.

4. The difficulty in distinguishing the specific significance of the individual components of the Net Social Support score is probably due to the strong internal correlation of the individual components of social support as defined in NSSQ (Appendix A).

Implications for Nursing

There has been a significant increase in the interest of researchers and health care providers in the effect of social support in health.

Most of the research has been done in the area of psychological well-being, but little has been done to relate the effect of social support to specific disorders resulting in symptoms or pathology. The implications of the model, developed for study and implementation by Norbeck (1981), may add a new dimension to the use of social support in nursing. Planning nursing intervention around the assessed social support needs adds a new dimension to nursing. Once more information about the effect of social support, as well as information about the adequacy of social support, in illness can be determined, intervention can be planned and carried out more effectively by nurses and other health care providers. The adequacy of social support and its relationship to health and illness has not been included in nursing intervention previously.

This study has several implications for blood pressure control and for nursing intervention in that control. The NSSQ used in the study included health care providers in the social support network along with spouse, family, friends, work associates, neighbors, counselors, ministers, and others. The nurse, as a health care provider, is more established in roles which require her to be more involved with clients, families, and follow-up care. Many hypertensives see the nurse on a regular basis for blood pressure checks and only see the physician for medicine adjustments or regular checkups. The nurse can become influential in the client's blood pressure control as a member of the social support network as she monitors the blood pressure and assists in educating the client about his/her condition and its treatment. Consequently, the nurse is placed in a strategic position to intervene and thus increase the adequacy of social support. Some clients with special needs or low social support may be more willing to incorporate the nurse into their

support network. The frequency with which the nurse has contact with the client can also be a factor in the influence afforded to the client. Frequent contact either with visits in the office, home, or by phone may be a role that nurses can fill to increase support and to effect a decrease in blood pressure. Nurses can also be a part in establishing support systems for patients through referral to agencies, support groups, and other organizations. The clients having little or no support systems may benefit greatly by a referral to an agency or support group.

Recommendations for Further Study

1. Use the NSSQ for an experimental study using nursing intervention over a period of time as a support variable to determine the effect on blood pressure.

2. Investigate how family support affects the blood pressure of the mild and moderate hypertensive.

3. Investigate the specific variables in social support more thoroughly.

4. Control the number in the social support network through the criteria for subject selection which might show the effect of other variables more clearly.

5. Investigate how social support affects the compliance of the hypertensive to his regimen.

6. Use the NSSQ to study subjects for a year following diagnosis with the same person doing all the blood pressure measurements and data collection.

7. Use a random sampling to study a representative population.

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APPENDIXES

APPENDIX A

NORBECK SOCIAL SUPPORT QUESTIONNAIRE

SOCIAL SUPPORT QUESTIONNAIRE

PLEASE READ ALL DIRECTIONS ON THIS PAGE BEFORE STARTING.

Please list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you.

Use only first names or initials, and then indicate the relationship, as in the following example:

Example:

	First Name or Initials	Relationship
1.	MARY T.	FRIEND
2.	BOB	BROTHER
3.	M.T.	MOTHER
4.	SAM	FRIEND
5.	MRS. R.	NEIGHBOR

etc.

Use the following list to help you think of the people important to you, and list as many people as apply in your case.

- spouse or partner
- family members or relatives
- friends
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- minister/priest/rabbi
- other

You do not have to use all 24 spaces. Use as many spaces as you have important persons in your life.

WHEN YOU HAVE FINISHED YOUR LIST, PLEASE TURN TO PAGE 2.

Number _____ [1-4]
Date _____

PERSONAL NETWORK

	First Name or Initials	Relationship	
1.			[32]
2.			[33]
3.			[34]
4.			[35]
5.			[36]
6.			[37]
7.			[38]
8.			[39]
9.			[40]
10.			[41]
11.			[42]
12.			[43]
13.			[44]
14.			[45]
15.			[46]
16.			[47]
17.			[48]
18.			[49]
19.			[50]
20.			[51]
21.			[52]
22.			[53]
23.			[54]
24.			[55]

[5-6]

For each person you listed, please answer the following questions by writing in the number that applies.

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 1:

How much does this person make you feel liked or loved?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[7-9]

Question 2:

How much does this person make you feel respected or admired?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[10-12]

GOON TO NEXT PAGE

Number _____ [1-4]
Date _____

PERSONAL NETWORK

	First Name or Initials	Relationship	
1.	_____	_____	[32]
2.	_____	_____	[33]
3.	_____	_____	[34]
4.	_____	_____	[35]
5.	_____	_____	[36]
6.	_____	_____	[37]
7.	_____	_____	[38]
8.	_____	_____	[39]
9.	_____	_____	[40]
10.	_____	_____	[41]
11.	_____	_____	[42]
12.	_____	_____	[43]
13.	_____	_____	[44]
14.	_____	_____	[45]
15.	_____	_____	[46]
16.	_____	_____	[47]
17.	_____	_____	[48]
18.	_____	_____	[49]
19.	_____	_____	[50]
20.	_____	_____	[51]
21.	_____	_____	[52]
22.	_____	_____	[53]
23.	_____	_____	[54]
24.	_____	_____	[55]

[5-6]

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 3:

How much can you confide in this person?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[13-15]

Question 4:

How much does this person agree with or support your actions or thoughts?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[16-18]

GO ON TO NEXT PAGE

Number _____ [1-4]
Date _____

PERSONAL NETWORK

First Name or Initials	Relationship	
1. _____	_____	[32]
2. _____	_____	[33]
3. _____	_____	[34]
4. _____	_____	[35]
5. _____	_____	[36]
6. _____	_____	[37]
7. _____	_____	[38]
8. _____	_____	[39]
9. _____	_____	[40]
10. _____	_____	[41]
11. _____	_____	[42]
12. _____	_____	[43]
13. _____	_____	[44]
14. _____	_____	[45]
15. _____	_____	[46]
16. _____	_____	[47]
17. _____	_____	[48]
18. _____	_____	[49]
19. _____	_____	[50]
20. _____	_____	[51]
21. _____	_____	[52]
22. _____	_____	[53]
23. _____	_____	[54]
24. _____	_____	[55]

[5-6]

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 5:

If you needed to borrow $10, a ride to the doctor, or some other immediate help, how much could this person usually help?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[19-21]

Question 6:

If you were confined to bed for several weeks, how much could this person help you?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[22-24]

GO ON TO NEXT PAGE

Number _____ [1-4]
Date _____

PERSONAL NETWORK

First Name or Initials	Relationship
1. _____ [5-6]	_____ [32]
2. _____	_____ [33]
3. _____	_____ [34]
4. _____	_____ [35]
5. _____	_____ [36]
6. _____	_____ [37]
7. _____	_____ [38]
8. _____	_____ [39]
9. _____	_____ [40]
10. _____	_____ [41]
11. _____	_____ [42]
12. _____	_____ [43]
13. _____	_____ [44]
14. _____	_____ [45]
15. _____	_____ [46]
16. _____	_____ [47]
17. _____	_____ [48]
18. _____	_____ [49]
19. _____	_____ [50]
20. _____	_____ [51]
21. _____	_____ [52]
22. _____	_____ [53]
23. _____	_____ [54]
24. _____	_____ [55]

Number _____ [1-4]
Date _____

Question 7:

How long have you known this person?

1 = less than 6 months
2 = 6 to 12 months
3 = 1 to 2 years
4 = 2 to 5 years
5 = more than 5 years

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[25-27]

Question 8:

How frequently do you usually have contact with this person? (Phone calls, visits, or letters)

5 = daily
4 = weekly
3 = monthly
2 = a few times a year
1 = once a year or less

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[28-30]

PLEASE BE SURE YOU HAVE RATED EACH PERSON ON EVERY QUESTION. GO ON TO THE LAST PAGE.

PERSONAL NETWORK

	First Name or Initials	Relationship	
1.	_____	_____	[32]
2.	_____	_____	[33]
3.	_____	_____	[34]
4.	_____	_____	[35]
5.	_____	_____	[36]
6.	_____	_____	[37]
7.	_____	_____	[38]
8.	_____	_____	[39]
9.	_____	_____	[40]
10.	_____	_____	[41]
11.	_____	_____	[42]
12.	_____	_____	[43]
13.	_____	_____	[44]
14.	_____	_____	[45]
15.	_____	_____	[46]
16.	_____	_____	[47]
17.	_____	_____	[48]
18.	_____	_____	[49]
19.	_____	_____	[50]
20.	_____	_____	[51]
21.	_____	_____	[52]
22.	_____	_____	[53]
23.	_____	_____	[54]
24.	_____	_____	[55]

[5-6]

Number _____

APPENDIX B

To enable us to compare the results of this study with people from different groups and situations, we would like some additional information about your background. Please complete the following items.

1. AGE _____ [5-6]

2. SEX [7]
   _____ 1. male
   _____ 2. female

3. MARITAL STATUS [8]
   _____ 1. single, never married
   _____ 2. married
   _____ 3. divorced or separated
   _____ 4. widowed

4. EDUCATIONAL LEVEL [9-10]
   What is the highest grade of regular school that you completed? (Circle one)

Grade School								High School				College				Graduate School					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

5. ETHNIC BACKGROUND [11]
   _____ 1. Asian
   _____ 2. Black
   _____ 3. Caucasian
   _____ 4. Hispanic
   _____ 5. Native American
   _____ 6. Other (Specify) _____

6. RELIGIOUS PREFERENCE [12]
   _____ 1. Protestant (Specify) _____
   _____ 2. Catholic
   _____ 3. Jewish
   _____ 4. Other (Specify) _____
   _____ 5. None

7. PARTICIPATION IN RELIGIOUS ACTIVITIES [13]
   _____ 1. Inactive
   _____ 2. Infrequent Participation (1-2 times a year)
   _____ 3. Occasional Participation (about monthly)
   _____ 4. Regular Participation (weekly)

9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason? [57]

_____ 0. No
_____ 1. Yes

IF YES:

9a. Please indicate the number of persons from each category who are *no longer available* to you.

_____ spouse or partner [58]
_____ family members or relatives [59-60]
_____ friends [61-62]
_____ work or school associates [63-64]
_____ neighbors [65-66]
_____ health care providers [67]
_____ counselor or therapist [68]
_____ minister/priest/rabbi [69]
_____ other (specify) _____ [70] [71-72]

9b. Overall, how much of your support was provided by these people who are no longer available to you? [73]

_____ 0. none at all
_____ 1. a little
_____ 2. a moderate amount
_____ 3. quite a bit
_____ 4. a great deal

Subject No. _____ [1-4]
No. in Network _____ [5-6]

SOCIAL SUPPORT QUESTIONNAIRE
Supplemental Scoring Sheet

Demographic Data: Age _____, Sex _____
Ethnicity _____, Education (yrs) _____
Marital Status _____
Type of Group _____ (e.g. dialysis patients)
[CARD 2]

	Relationship	Ques. 1	Ques. 2	Ques. 3	Ques. 4	Ques. 5	Ques. 6	Person Totals (from Ques. 1-6)	Ques. 7	Ques. 8
1.	[32]							[5-6]		[54]
2.	[33]							[7-8]		[55]
3.	[34]							[9-10]		[56]
4.	[35]							[11-12]		[57]
5.	[36]							[13-24]		[58]
6.	[37]							[15-16]		[59]
7.	[38]							[17-18]		[60]
8.	[39]							[19-20]		[61]
9.	[40]							[21-22]		[62]
10.	[41]							[23-24]		[63]
11.	[42]							[25-26]		[64]
12.	[43]							[27-28]		[65]
13.	[44]							[29-30]		[66]
14.	[45]							[31-32]		[67]
15.	[46]							[33-34]		[68]
16.	[47]							[35-36]		[69]
17.	[48]							[37-38]		[70]
18.	[49]							[39-40]		[71]
19.	[50]							[41-42]		[72]
20.	[51]							[43-44]		[73]
21.	[52]							[45-46]		[74]
22.	[53]							[47-48]		[75]
23.	[54]							[49-50]		[76]
24.	[55]							[51-52]		[77]
Question Totals										
		[7-9]	[10-12]	[13-15]	[16-18]	[19-21]	[22-24]		[25-27]	[28-30]

[57] Question 9 _____ 0 = No, 1 = Yes
[71-72] Question 9a _____ Category codes: [58] _____ [59-60] _____ [61-62] _____ [63-64] _____ [65-66] _____ [67] _____ [68] _____ [69] _____ [70] _____
[73] Question 9b _____

FIGURE 1

APPENDIX B

VOLUNTARY CONSENT FORM

Patient Consent Form

I, _____, do hereby give my consent to participate in the study conducted by Edith P. Vaughan, a graduate student and registered nurse. I have been informed that the purpose of the study is to examine the effect of social support on blood pressure.

I understand that it will involve my participation in a thirty minute interview concerning my family, friends, and other significant people in my life. I also give consent for Ms. Vaughan to gather necessary data from my chart.

I understand that the information given to Ms. Vaughan will be kept confidential and that my name will not be revealed in the study results and report.

I understand that my participation in the study will not affect my medical care, that I may refuse to answer any interview question, and that I may withdraw from the study at any time. Withdrawal from the study will not affect my medical care in any way.

_____ _____

Date Signed

APPENDIX C

DATA COLLECTION CONSENT

HEALTH DEPARTMENT CONSENT FORM

Edith Vaughan, a graduate nursing student at Medical College of Virginia, Virginia Commonwealth University, has explained her study and has permission to use the General Medical Clinic at the Peninsula Health Center in the identification of hypertensive clients for possible use in her study.

The clinic staff will give Ms. Vaughan the names of hypertensive clients coming to the clinic, from whom she will gain consent for their participation in the study and permission to get needed information from their charts.

Signed [redacted]

Date 8/4/83

APPENDIX A

Request Form

I request permission to copy the Norbeck Social Support Questionnaire (NSSQ) for use in research in a study entitled: The Effect of Social Support on the Blood Pressure

In exchange for this permission, I agree to submit to Dr. Norbeck a copy of the one-page scoring sheet for each subject tested. These data will be used to establish a broad normative database for the instrument for clinical and non-clinical populations. Aside from use in the pooled data bank, no other use will be made of the data submitted. Credit will be given to me in reports of normative statistics that make use of the data I submitted for pooled analyses.

[redacted]
(Signature)

6-8-83
(Date)

Position and Full Address of Investigator: Graduate Student at U.C.V./ V.C.U. also
Instructor, Community Health Nursing
Riverside Hospital School of Nursing
J. Clyde Morris Blvd.
Newport News, Virginia also
310 Malden Lane
Newport News, Virginia 23602

Permission is hereby granted to copy the NSSQ for use in the research described above.

[redacted]
Jane S. Norbeck
June 20, 1983
(Date)

Please send *two signed* copies of this form to:

Jane S. Norbeck, D.N.Sc.
Department of Mental Health and Community Nursing
University of California, San Francisco
N505-Y
San Francisco, California 94143

APPENDIX D

LETTERS

ity A. Hall, R.N., Ph.D.

ol of Nursing
rtment of Mental Health and
nunity Nursing
N505-Y
Francisco, California 94143
668-1504

83

UCSF

University of California, San Francisco A Health Sciences Campus

April 19, 1983

Edith Price Vaughan, B.S.N., R.N.
[redacted]

Dear Ms. Vaughan:

Enclosed is the copy of the revised Norbeck Social Support Questionnaire and complete scoring instructions that you requested.

In addition to the initial testing and description of the NSSQ, reported in the September/October, 1981 issue of Nursing Research, a second phase of testing this instrument has been completed. The January/February, 1983 issue of Nursing Research presents normative data with employed adults, further testing of the instrument's stability and sensitivity, and construct, concurrent, and predictive validity.

Should you have any questions about the use of the NSSQ, please feel free to contact me again.

Thank you for your interest in the NSSQ.

Sincerely,

[redacted]

Jane S. Norbeck, R.N., D.N.Sc.
Assistant Professor

JSN/md

Enclosures

June 8, 1983

[redacted]

Jane S. Norbeck, R.N., D.N.Sc.
Department of Mental Health and Community Health
University of California 94143

Dear Dr. Norbeck,

Thank you for your willingness to share the Norbeck Social Support Questionnaire with me. Your information was most impressive and very helpful.

I would like to use the NSSQ in my study of the Effect of Social Support on Blood Pressure. If all goes well I would like to begin collecting data within the next several weeks. The hope is to get at least 50 participants for the study.

Enclosed is the form for permission to copy and use the NSSQ in my study. I hope that my contributions will be as to you as yours have been to me.

Thank you again for your assistance.

Sincerely,

[redacted]

Edith Price Vaughan, R.N.,B.S.N.

August 3, 1983

[redacted]

Dr. William H. Cope, M.D.
Director, Peninsula Health District

[redacted]

Dear Dr. Cope,

I am presently preparing my thesis for completion of a Master's Degree in Community Health Nursing at Medical College of Virginia. The study being done for thesis requirement, will examine the effect of social support on the blood pressure of mild and moderate hypertensive clients, who have been diagnosed for a year to two years. Each client will be seen once by this researcher in order to obtain informed consent, which includes consent for participation and consent for use of their chart for information, to obtain a current blood pressure reading, and to have the client complete the Norbeck Social Support Questionnaire. Client information will be kept confidential and only recorded and used by an assigned number.

Your permission to use the records in the General Medical Clinic, for the purpose of identifying hypertensives clients and for obtaining diagnostic blood pressures, would be greatly appreciated.

Sincerely,

[redacted]

Edith P. Vaughan

APPENDIX E

ADDITIONAL DATA

APPENDIX E

TABLE 1. DEMOGRAPHIC RAW DATA SUMMARY

Subj	No. in Network	Sex	Race	Age	Educ	Religion/Partic.	Marital Status	Diag BP	Observed BP	Individual Mean BP
1	15	F	C	42	18	Presby/Reg	M	140/96	132/80	136/88
2	7	M	C	74	13	Bapt/Infreq	M	180/95	140/82	160/88.5
3	5	F	C	53	10	Bapt/Reg	W	170/108	150/100	160/104
4	5	F	C	67	9	Bapt/Reg	W	180/100	152/90	166/95
5	9	F	A	57	6	Protest/Reg	M	172/102	150/90	161/96
6	4	M	B	59	8	Bapt/Infreq	M	154/106	140/90	147/98
7	8	F	C	59	12	Bapt/Occas	M	160/108	140/88	150/98
8	9	M	B	48	12	Bapt/Occas	M	176/100	130/82	153/91
9	8	F	C	68	14	Bapt/Reg	M	158/98	142/90	150/94
10	9	M	C	48	12	Bapt/Inact	D	180/100	156/92	168/96
11	5	M	B	58	4	Bapt/Inact	D	156/106	130/88	153/97
12	9	F	B	34	12	Bapt/Inact	M	160/110	156/100	158/105
13	8	F	B	48	12	Christian/Occas	D	160/112	150/100	155/106
14	8	F	C	72	6	Meth/Reg	M	164/90	140/80	152/85
15	10	F	N.Am.	49	10	Protest/Occas	D	140/98	138/84	139/91
16	11	F	C	49	8	Bapt/Inact	D	142/92	122/80	132/86
17	6	F	C	83	8	Bapt/Occas	W	166/100	140/88	153/94
18	6	F	B	46	8	Bapt/Inact	D	180/98	156/96	168/97
19	3	M	B	75	3	None/Inact	D	142/90	120/90	131/90
20	4	M	C	63	9	Meth/Inact	M	160/90	130/90	145/90
21	9	F	B	48	8	Holiness/Reg	D	170/110	120/90	145/100
22	13	F	C	45	16	Presby/Reg	M	180/92	120/70	150/81
23	9	F	B	39	12	Bapt/Inact	D	180/95	130/85	155/90
24	10	M	C	39	16	Meth/Reg	M	145/90	128/84	136.5/87
25	5	F	C	49	10	Bapt/Inact	M	176/104	150/92	163/98
26	8	F	C	48	13	Non-Demon/Reg	M	170/110	140/90	155/100
27	8	F	B	81	8	Christian/Occas	W	178/100	170/90	174/95
28	13	F	C	29	11	Bapt/Occas	S	134/98	130/80	132/89
29	16	F	C	39	14	Presby/Reg	M	160/104	120/80	140/92
30	6	F	C	58	12	Bapt/Infreq	W	192/98	156/88	174/93

APPENDIX E

TABLE 2. SUBJECTS' MEDICATION REGIMEN

(N = 30)

Medications	Dosage	N	Taken Singularly	Taken with Inderal 80 mg
Hydrochlorothiazide	50 mg	17	15	2
	25 mg	1	1	0
Diazide	50 mg	6	4	2
	25 mg	1	1	0
Hygroton	50 mg	1	1	0
Motrin	300 mg Tid	1	1	0
Inderal	30 mg	1	1	0
Hydropress	25 mg	1	1	0
Atenoral	50 mg	1	1	0

VITA

Vita